We claim:

1. An embolic filter assembly, said filter assembly comprising:

at least one strand of wire forming a support hoop;

the strand of wire extending from said support hoop and forming at least one suspension strut;

the suspension strut coupled, at least in part, to a guide wire or a filter wire or a tube; and

a blood permeable sac having an opening, said opening fixedly attached to the support hoop, thereby forming a proximal opening or mouth of the embolic filter.

2. The filter assembly of claim 1, wherein the support hoop is self-expanding.

3. The filter assembly of claim 2, wherein said support hoop has a preformed shape.

4. The filter assembly of claim 1, wherein the support hoop and/or the suspension strut is comprised of a bio-compatible material.

5. The filter assembly of claim 4, wherein the bio-compatible material comprises a nickel-titanium alloy (nitinol).

6. The filter assembly of claim 4, wherein the bio-compatible material comprises stainless steel.

7. The filter assembly of claim 1, wherein the at least one suspension strut is, at least in part, entwined around said guide wire or said filter wire, thereby forming a helix having the guide wire or the filter wire moveably passing through the lumen comprised by said helix.

8. The filter assembly of claim 7, wherein the helix if formed by entwining the at least one suspension strut, at least in part, in the distal to proximal direction.

9. The filter assembly of claim 7, wherein the helix if formed by first longitudinally traversing the at least one suspension strut, at least in part, along said guide wire or said filter wire in a distal to proximal direction, and then entwining the at least one suspension strut, at least in part, in the proximal to distal direction.

10. The filter assembly of claim 7, wherein the helix is held together with a thread or a wire or a ribbon comprised of a bio-compatible material.

11. The filter assembly of claim 10, wherein the bio-compatible material comprises a nickel-titanium alloy (nitinol).

12. The filter assembly of claim 10, wherein the bio-compatible material comprises stainless steel.

13. The filter assembly of claim 7, wherein the helix is covered with a bio-compatible material.

14. The filter assembly of claim 13, wherein the bio-compatible material is a heat shrink tubing.

15. The filter assembly of claim 13, wherein the bio-compatible material is an adhesive.

16. The filter assembly of claim 13, wherein the bio-compatible material is a soldering material.

17. The filter assembly of claim 13, wherein the bio-compatible material is a welding material.

18. The filter assembly of claim 1, wherein emboli-laden blood enters the mouth or proximal opening of the embolic filter, and the emboli becomes entrapped within said blood permeable sac.

19. The filter assembly of claim 1, wherein the at least one suspension strut is comprised of at least two sections of the strand of wire forming the support hoop.

20. The filter assembly of claim 19, wherein the at least one suspension strut has an articulation point whereafter the at least two sections of the strand of wire extend proximally for attachment to a guide wire or a filter wire.

21. The filter assembly of claim 20, wherein the at least two sections of the strand of wire proximal of the articulation point are entwined around the guide wire or the filter wire, thereby forming a helix having the guide wire or the filter wire moveably passing through the lumen comprised by said helix.

22. The filter assembly of claim 20, wherein:

one or more regions on the at least two sections of the strand of wire proximal of the articulation point are stamped flat having one or more regions of unstamped wire therebetween;

the at least two sections of the strand of wire are intertwined and held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire is entwined around the guide wire or the filter wire, thereby forming a helix having the guide wire or the filter wire moveably passing through the lumen comprised by said helix.

23. The filter assembly of claim 20, wherein:

the at least two sections of the strand of wire proximal of the articulation point are intertwined together;

one or more regions on the intertwined wire proximal of the articulation point are stamped flat having one or more regions of unstamped wire therebetween;

the intertwined wire is held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire is entwined around the guide wire or the filter wire, thereby forming a helix having the guide wire or the filter wire moveably passing through the lumen comprised by said helix.

24. The filter assembly of claim 20, wherein:

the at least two sections of the strand of wire proximal of the articulation point are stamped flat;

the at least two sections of the flattened strand of wire are intertwined and held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire is entwined around the guide wire or the filter wire, thereby forming a helix having the guide wire or the filter wire moveably passing through the lumen comprised by said helix.

25. The filter assembly of claim 20, wherein the at least two sections of the strand of wire proximal of the articulation point are weaved through one or more turns of

wire forming a coil, and having the guide wire or the filter wire moveably passing through the lumen of the coil.

26. The filter assembly of claim 20, wherein the at least two sections of the strand of wire proximal of the articulation point are mechanically attached to a separate piece of wire forming a longitudinally extending helix around the guide wire or the filter wire, and having the guide wire or the filter wire moveably passing through the lumen of the helix.

27. The filter assembly of claim 26, wherein the at least two sections of the strand of wire proximal of the articulation point are mechanically attached to the helix by weaving the strand of wire through alternate turns of the helix forming wire, and having the guide wire or the filter wire moveably passing through the lumen of the helix.

28. The filter assembly of claim 20, wherein:

the at least two sections of the strand of wire proximal of the articulation point are coiled around a base coil;

the coiled strand of wire is bonded to the base coil using a bio-compatible bonding material; and

the guide wire or the filter wire moveably passes through the lumen of the base coil.

29. The filter assembly of claim 20, wherein:

the at least two sections of the strand of wire proximal of the articulation point are formed into a ring having a diameter greater than the inside diameter of a coil having a lumen therethrough;

the ring squeezed into a smaller diameter and placed within the lumen of the coil and held in place by mechanical forces imposed by the ring onto the inside surface of the coil; and

the guide wire or the filter wire moveably passes through the lumen of the coil.

30. The filter assembly of claim 20, wherein:

the at least two sections of the strand of wire proximal of the articulation point are separated from each other such that the distance between the at least two sections of the strand of wire is greater than the inside diameter of a coil having a lumen therethrough;

the separated proximal sections the at least two sections of the strand of wire squeezed together and placed within the lumen of the coil and held in place by mechanical forces imposed by the at least two sections of the strand of wire onto the inside surface of the coil; and

the guide wire or the filter wire moveably passes through the lumen of the coil.

31. An embolic filter assembly, said filter assembly comprising:

at least one strand of wire forming a support hoop;

the strand of wire extending from said support hoop and forming at least one suspension strut;

the suspension strut fixedly attached, at least in part, to a tube having a moveable guide wire or a moveable filter wire therethrough; and

a blood permeable sac having an opening, said opening fixedly attached to the support hoop, thereby forming a proximal opening or mouth of the embolic filter.

32. The filter assembly of claim 31, wherein the at least one suspension strut is, at least in part, entwined around said tube, thereby forming a helix around the tube.

33. The filter assembly of claim 32, wherein the helix if formed by entwining the at least one suspension strut, at least in part, in the distal to proximal direction.

34. The filter assembly of claim 32, wherein the helix if formed by first longitudinally traversing the at least one suspension strut, at least in part, along said guide wire or said filter wire in a distal to proximal direction, and then entwining the at least one suspension strut, at least in part, in the proximal to distal direction.

35. The filter assembly of claim 32, wherein the helix is held together with a thread or a wire or a ribbon comprised of a bio-compatible bonding material.

36. The filter assembly of claim 32, wherein the helix is covered with a bio-compatible bonding material.

37. The filter assembly of claim 36, wherein the bio-compatible bonding material is a heat shrink tubing.

38. The filter assembly of claim 36, wherein the bio-compatible bonding material is an adhesive.

39. The filter assembly of claim 36, wherein the bio-compatible bonding material is a soldering material.

40. The filter assembly of claim 36, wherein the bio-compatible bonding material is a welding material.

41. The filter assembly of claim 31, wherein emboli-laden blood enters the mouth or proximal opening of the embolic filter, and the emboli becomes entrapped within said blood permeable sac.

42. The filter assembly of claim 31, wherein the at least one suspension strut is comprised of at least two sections of the strand of wire forming the support hoop.

43. The filter assembly of claim 42, wherein the at least one suspension strut has an articulation point whereafter the at least two sections of the strand of wire extend proximally for attachment to the tube.

44. The filter assembly of claim 43, wherein the at least two sections of the strand of wire proximal of the articulation point are entwined around the tube and held in place by a bio-compatible bonding material.

45. The filter assembly of claim 43, wherein:

one or more regions on the at least two sections of the strand of wire proximal of the articulation point are stamped flat having one or more regions of unstamped wire therebetween;

the at least two sections of the strand of wire are intertwined and held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire is entwined around the tube and held in place by a bio-compatible bonding material.

46. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are intertwined together;

one or more regions on the intertwined wire proximal of the articulation point are stamped flat having one or more regions of unstamped wire therebetween;

the intertwined wire is held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire positioned on the tube and held in place by a bio-compatible bonding material.

47. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are stamped flat;

the at least two sections of the flattened strand of wire are intertwined and held in place by a bio-compatible bonding material forming a bonded strand of wire; and

the bonded strand of wire is entwined around the tube and held in place by a bio-compatible bonding material.

48. The filter assembly of claim 43, wherein the at least two sections of the strand of wire proximal of the articulation point are weaved through one or more turns of wire forming a coil around the tube and held in place by a bio-compatible bonding material.

49. The filter assembly of claim 43, wherein the at least two sections of the strand of wire proximal of the articulation point are mechanically attached to a separate piece of wire forming a longitudinally extending helix around the tube and held in place by a bio-compatible bonding material.

50. The filter assembly of claim 49, wherein the at least two sections of the strand of wire proximal of the articulation point are mechanically attached to the helix by weaving the strand of wire through alternate turns of the helix forming wire around the tube and held in place by a bio-compatible bonding material.

51. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are coiled around a base coil having a lumen therethrough;

the coiled strand of wire is bonded to the base coil using a bio-compatible bonding material; and

the tube placed within the lumen of the base coil and held in place by a bio-compatible bonding material.

52. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are formed into a ring having a diameter greater than the inside diameter of a coil having a lumen therethrough;

the ring squeezed into a smaller diameter and placed within the lumen of the coil and held in place by mechanical forces imposed by the ring onto the inside surface of the coil; and

the tube placed within the lumen of the coil and held in place by a bio-compatible bonding material.

53. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are separated from each other such that the distance between the at least two sections of the strand of wire is greater than the inside diameter of a coil having a lumen therethrough;

the separated proximal sections the at least two sections of the strand of wire squeezed together and placed within the lumen of the coil and held in place by mechanical forces imposed by the at least two sections of the strand of wire onto the inside surface of the coil; and

the tube placed within the lumen of the coil and held in place by a bio-compatible bonding material.

54. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are formed into a zig-zag shape;

the zig-zag strand of wire place on the outside surface of the tube; and

the stand of wire held in place on the tube using a bio-compatible bonding material.

55. The filter assembly of claim 43, wherein:

a bio-compatible bonding material is applied forming a common bead at the proximal ends of the at least two sections of the strand of wire; and

the at least two sections of the strand of wire proximal of the articulation point positioned to the tube and held in place using a bio-compatible bonding material applied between the articulation point and the common bead.

56. The filter assembly of claim 43, wherein:

the at least two sections of the strand of wire proximal of the articulation point are intertwined; and

the intertwined strand of wire proximal of the articulation point positioned to the tube and held in place using a bio-compatible bonding material.

57. The filter assembly of claim 43, wherein:

the tube is a thick-walled tube having an inside diameter substantially smaller than the outside diameter;

one or more holes having a diameter smaller than the diameter of the strand of wire are drilled into the distal end of the thick-walled tube;

the thick-walled tube heated to a temperature greater than the room temperature causing an increase in the diameter of the one or more holes;

the proximal ends of the strand of wire are placed with the one or more holes while the thick-walled tube is at the elevated temperature; and

the thick-walled tube is cooled to room temperature causing a decrease in the diameter of the one or more holes forming a mechanical bond having the strand of wire securely held in place inside the one or more holes in the thick-walled tube.

58. An embolic filter assembly, said filter assembly comprising:

at least one strand of wire forming a support hoop;

the strand of wire extending from said support hoop and forming at least one suspension strut;

the suspension strut coupled, at least in part, to a guide wire or a filter wire; and

a blood permeable sac having an opening, said opening fixedly attached to the support hoop, thereby forming a proximal opening or mouth of the embolic filter.

59. An embolic filter assembly, said filter assembly comprising:

at least one strand of wire forming a support hoop;

the strand of wire extending from said support hoop and forming at least one suspension strut;

the suspension strut fixedly attached, at least in part, to a tube having a moveable guide wire or a moveable filter wire therethrough; and

a blood permeable sac having an opening, said opening fixedly attached to the support hoop, thereby forming a proximal opening or mouth of the embolic filter.